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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,202	01/30/2001	Rahul Khanna	042390.P10727	4484

7590

08/27/2003

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EXAMINER

KING, JUSTIN

ART UNIT

PAPER NUMBER

2181

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/773,202

Applicant(s)

KHANNA, RAHUL

Examiner

Justin I. King

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____



DETAILED ACTION

Drawings

1. Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Method or Apparatus for establishing a plug and play (PnP) communication channel via an abstraction layer interface".

Claim Objections

3. Claim 20 is objected to because of the following informalities: Claim 20 recites, "sending an resource access command corresponding to the resource access command". Applicant may have meant "corresponding to the resource access request". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 5, 7-15, 18-19, 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 5: Claim 5 recites “one or more methods” on lines 3-4. There are a method on claim 1’s preamble and resource access method(s) on claim 1’s lines 9 and 11. It is ambiguous whether claim 5 is referring to one of the claim 1’s methods or some other new methods.

Referring to claim 7: Claim 7 recites “a device” on lines 14 and 16. There are antecedent basis for the “device”.

Referring to claims 8-15: Claims are rejected because they incorporate claim 7’s limitations.

Referring to claim 15: Claim 15 recites “one or more methods” on line 4. There is a resource access method(s) on claim 12’s line 10. It is ambiguous whether claim 15 is referring to claim 12’s methods or some other new methods.

Referring to claims 18-19: Claim 18 recites “one or more methods” on line 4. There is a resource access method(s) on claim 17’s line 10. It is ambiguous whether claim 18 is referring to claim 17’s methods or some other new methods. Claim 19 is rejected because it incorporates claim 18’s limitations.

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Referring to claim 23: Claim 23 recites "one or more methods" on lines 3-4. There is a resource access method on claim 20's line 15. It is ambiguous whether claim 23 is referring to claim 20's methods or some other new methods.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. ¹⁻²⁷ Claim ~~6-27~~ are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the admitted prior art, Furner et al. (U.S. Patent No. 5,974,474) and Fung et al. (U.S. Patent No. 6,301,011).

Referring to claim 1: The admitted prior art figure 3 and specification (page 2, last paragraph) disclose sending a resource access request to a device driver or OPRM for the device and sending an resource access command corresponding to the device access request from

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the device driver or OPROM. The admitted prior art does not disclose sending the abstraction layer interface.

Furner discloses an interface between the hardware driver and the hardware. Furner teaches that it is known to place an interface/proxy between the hardware and drivers for selecting the best suitable driver. Furner does not disclose that the interface has resource access methods for performing operations on the hardware devices.

Fung discloses an interface (figure 2, structure 420) verifying whether a resource operation corresponding to the resource access command is authorized to be performed on the device; determining a resource access method (figure 3, structure 428, shared library) that may be implemented to cause the device to perform the resource operation; and calling the resource access method(s) to perform the resource operation on the device. Fung teaches that it is known to manage the device operations with the structure design of placing an interface with enclosed resource access methods between the I/O devices and the requesters.

Hence, it would have been obvious to one having ordinary skill in the computer art to combine the admitted prior art, Furner, and Fung because Furner enables the plug and play system to select a better driver for optimized operations and Fung enables adding new output device without extensive revision of the system.

Referring to claim 2: Claims1's argument applies; furthermore, Furner discloses each hardware device includes a bus tag and a device identifier for plug-and-play (column 4, lines 37-39, column 6, lines 28-44). Thus, Furner discloses requesting data to be read from the device, further comprising returning data read from the device to the device driver or OPROM.

Referring to claim 3: Claim 1's argument applies; furthermore, Furner teaches that it is known to use a database (figure 5, structure 117) in the layer; Fung discloses a shared library (column 2, lines 3, figure 3, structure 428), which is a database with resource access methods.

Referring to claim 4: Claim 1's argument applies; furthermore, Furner discloses a database containing resource information (figures 2A-E, figure 5, structure 117) corresponding to any devices in a hierarchy of the root bus. Furner further discloses that the reference table contains the hardware instance information (figure 5, structure 129, column 13, lines 58-61), wherein the hardware instance information includes the bus information (column 4, lines 37-57, figures 3A-D; thus, Furner discloses the storing the configuration of a root bus to which the device is directly or indirectly connected to.

Referring to claim 5: Claim 4's argument applies; furthermore, none of the prior arts discloses the object-oriented abstraction. An "Official Notice" is taken on the following: C++ is a well-known programming language, which provides the object-oriented abstraction and encapsulation. Hence, it would have been obvious to one having ordinary skill in the computer art to adapt the C++ programming to implement the interface layer's operations because C++'s object oriented model increases the reusability and privilege security of the functions.

Referring to claim 6: Claim 6 is rejected as the claim 5's argument, the C++ hides the access functions from the function callers, so that function caller may not directly access the device with those access functions.

Referring to claim 7: Claim 7 is rejected over the claims 1, 2, and 6's arguments, furthermore, Furner discloses multiple buses (figure 1A).

Referring to claim 8: Claim 8 is rejected over the claim 5's argument.

Referring to claim 9: Both Furner and Fung disclose the database.

Referring to claim 10: Furner discloses providing a record for each device in the database identifying the device, a device driver or OPRM for the device (figure 5, structure 117), and the root bus for the device (figures 3A-D). The "Official Notice" is taken as same as stated in the claim 5 above regarding the object-oriented abstraction.

Referring to claim 11: Claim 10's Official Notice applies, that the submitted parameters associated with each function call are the identification, resource, and resource access command(s).

Referring to claim 12: The admitted prior art figure 3 and specification (page 2, last paragraph) disclose sending a resource access request to a device driver or OPRM for the device and sending an resource access command corresponding to the device access request from the device driver or OPRM. The admitted prior art does not disclose sending the abstraction layer interface.

Furner discloses an interface between the hardware driver and the hardware. Furner teaches that it is known to place an interface/proxy between the hardware and drivers for selecting the best suitable driver. Furner does not disclose that the interface has resource access methods for performing operations on the hardware devices.

Fung discloses an interface (figure 2, structure 420) verifying whether a resource operation corresponding to the resource access command is authorized to be performed on the device; determining a resource access method (figure 3, structure 428, shared library) that may be implemented to cause the device to perform the resource operation; and calling the resource access method(s) to perform the resource operation on the device. Fung teaches that it is known

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to manage the device operations with the structure design of placing an interface with enclosed resource access methods between the I/O devices and the requesters.

Hence, it would have been obvious to one having ordinary skill in the computer art to combine the admitted prior art, Furner, and Fung because Furner enables the plug and play system to select a better driver for optimized operations and Fung enables adding new output device without extensive revision of the system.

Referring to claim 13: Claim 13 is rejected as claim 2's argument stated above.

Referring to claim 14: Claim 14 is rejected as claim 4's argument stated above.

Referring to claim 15: Claim 15 is rejected as claim 5's argument stated above.

Referring to claim 16: Claim 16 is rejected as claim 6's argument stated above.

Referring to claim 17: Claim 17 is rejected over the claims 12, 13, and 16's arguments, furthermore, Furner discloses multiple buses (figure 1A).

Referring to claim 18: Claim 18 is rejected as claim 15's argument stated above.

Referring to claim 19: Claim 19 is rejected as claims 9 and 10's arguments stated above.

Referring to claim 20: The admitted prior art figure 3 and specification (page 2, last paragraph) disclose a memory with instructions (figure 3, structures 40, 50, and 52), a device (structure 44), a root bus (structure 46), a processor (structure 42), and sending a resource access request to a device driver or OPROM for the device and sending an resource access command corresponding to the device access request from the device driver or OPROM. The admitted prior art does not disclose sending the abstraction layer interface.

Furner discloses an interface between the hardware driver and the hardware. Furner teaches that it is known to place an interface/proxy between the hardware and drivers for

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selecting the best suitable driver. Furner does not disclose that the interface has resource access methods for performing operations on the hardware devices.

Fung discloses an interface (figure 2, structure 420) verifying whether a resource operation corresponding to the resource access command is authorized to be performed on the device; determining a resource access method (figure 3, structure 428, shared library) that may be implemented to cause the device to perform the resource operation; and calling the resource access method(s) to perform the resource operation on the device. Fung teaches that it is known to manage the device operations with the structure design of placing an interface with enclosed resource access methods between the I/O devices and the requesters.

Hence, it would have been obvious to one having ordinary skill in the computer art to combine the admitted prior art, Furner, and Fung because Furner enables the plug and play system to select a better driver for optimized operations and Fung enables adding new output device without extensive revision of the system.

Referring to claim 21: Claim 21 is rejected as claim 13's argument stated above.

Referring to claim 22: Claim 22 is rejected as claim 14's argument stated above.

Referring to claim 23: Claim 23 is rejected as claim 15's argument stated above.

Referring to claim 24: Claim 24 is rejected as claim 16's argument stated above.

Referring to claim 25: Claim 25 is rejected over the claims 20, 21, and 24's arguments, furthermore, Furner discloses multiple buses (figure 1A).

Referring to claim 26: Claim 26 is rejected as claim 15's argument stated above.

Referring to claim 27: Claim 27 is rejected as claim 19's argument stated above.

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Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin King whose telephone number is (703) 305-4571. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephones are unsuccessfully, the examiner's supervisor, Mark Reinhart can be reached at (703) 308-3110.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose number is (703)-306-5631.



Justin King
August 20, 2003



GOPAL C. RAY
PRIMARY EXAMINER
GROUP 2000